satellite at 105.5° W.L provides a useful illustration of the possibilities for reduced spacing.

In the SES AMERICOM Petition, SES AMERICOM explained how analysis performed in accordance with Appendices 30 and 30A of the ITU Radio Regulations supported SES AMERICOM's belief that it would be able to reach successful agreements with potentially affected Administrations.[84] In subsequent pleadings, SES AMERICOM expanded on that showing to further demonstrate how its proposed satellite could be coordinated with adjacent U S.-licensed systems.[85]

EchoStar, in its own applications for satellites at 4 5° spacing, has also explained why such spacing should be achievable in appropriate cases.[86] EchoStar notes that, while it initially met reduced spacing proposals with skepticism, additional technical analysis has suggested that operation of a properly-designed DBS satellite at certain orbital slots located 4 5° from U.S. BSS assignments could be managed, without harmful interference to adjacent systems.[87] EchoStar concluded that "[t]hrough the careful coordination of power levels and frequencies delivered to a given area on the ground by satellites that are separated by 4.5 degrees, C/I levels could be managed to support economically viable DBS operations at these reduced spacings."[88]

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[84] *See* SES AMERICOM Petition at 8-11

[85] *See* SES AMERICOM Consolidated Reply at 22-32, and Attachments 1 and 2.

[86] *See, e g* EchoStar 96 5° W L Application at 1, 4-6

[87] *Id* at 4

[88] *Id* at 5

Finally, international experience with DBS satellites spaced less than nine-degrees apart indicates that 4.5° spacing should be generally feasible in the United States. In Europe, 50 million households are receiving direct-to-home multichannel video service from satellites that are spaced approximately 4.3° apart and have common coverage areas over central Europe. These SES satellites – at 19.2° E.L. and 23.5° E.L. – went into service many years apart, so that installation of receive dishes for the first satellite could not take into account the presence of the subsequent satellite in the initial pointing of the dishes.[89]

These examples, and the considerations outlined below, indicate that coordination of DBS satellites at 4.5° spacing is likely feasible in many cases, and such coordination efforts should be supported by the Commission.[90]

B. Each Proposal for a Satellite at Reduced Spacing Should Be Judged on its Own Merits.

The International Bureau seeks comment on an appropriate orbital spacing for DBS satellites.[91] The spacing needed between satellites depends entirely on the

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[89] While these systems use different dish sizes than those used in the U.S. (60 cm typical, as compared to 45-50 cm in the U.S.), the difference in received interference between the dish sizes in a 4.5° spacing environment can be taken into account by analytically increasing the relative level of interference expected into the U.S. DBS system by the difference between the sidelobe pattern of a 45 cm dish as compared to a 60 cm dish. With such analytical scaling, the interference level that would be expected to be received by the U.S. DBS systems is comparable to the interference levels currently being received by the European systems with 4.3° separation.

[90] At this time, SES AMERICOM takes no position on the feasibility of the proposals contained in the EchoStar Applications. Technical feasibility will depend on the technical parameters of the adjacent satellites and ITU filings, and on EchoStar's own performance and service requirements. The extensive studies required to assess these issues should be undertaken in coordination.

[91] *Public Notice* at 3.

particular operating parameters and service requirements of those satellites However, there is no need for the Commission to force all satellites to operate in an environment that is appropriate only for some Under Appendices 30 and 30A, incorporated by reference in the Commission Rules, this issue is handled on a case-by-case basis, in the context of a coordination. The Commission should not prejudge the possible outcomes of such coordination, but should continue to apply its existing rules.[92]

As recognized in the Public Notice, a number of different techniques can be exploited by satellite operators to aid in coordinating satellites at reduced spacing [93] As SES AMERICOM has described in the past, use of newer technologies such as Turbo or low density parity-check ("LDPC") forward error-correction coding[94] are some of the techniques that permit a new satellite and existing satellites to co-exist at reduced orbital spacing without sacrificing the commercial competitiveness of any of the satellites In addition, coordination is facilitated when two networks employ EIRP levels that roll-off similarly across the service area. Through inter-system coordination, these and other techniques can be explored thoroughly by the parties involved.

The International Bureau also seeks comment on the reference antenna pattern, pointing error and antenna size to assume for existing and new DBS subscriber

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[92] This regulatory framework avoids the need for a transition period for implementing satellites at reduced spacing. *See Public Notice* at 4. Once a new satellite is coordinated to function in the existing environment, there is no need to delay its launch and operation

[93] *Public Notice* at 3.

[94] These lower the required received carrier-to-noise ratio by several dB and consequently lower the acceptable C/I that the new satellite, as well as the incumbent satellites, can tolerate for the same level of service. *See* SES AMERICOM Consolidated Reply at 27, 29

earth systems. There are no unique answers to these questions. These assumptions depend on the relevant systems, and are addressed in detail in any coordination. The assumptions agreed to by the parties will vary from coordination to coordination. Use of assumptions based on modern antenna patterns, and careful and conscientious installation procedures for antenna pointing, will aid in achieving successful coordination.

Finally, the International Bureau seeks comment on the impact of DBS systems at reduced spacing on multi-satellite subscriber Earth station antennas. SES AMERICOM has addressed this issue in prior filings with the Commission. There is no technical reason why the off-axis discrimination of double- or triple-feed dishes could not be similar to that of current dishes or common reference antenna patterns, using current design techniques.[95] Analysis of the properties of the actual multi-satellite antenna(s) proposed to be used by a party to a coordination would be performed in coordination.

In sum, implementation of DBS satellites at reduced orbital spacing is technically feasible in many cases. However, the spacing that can be accommodated, the techniques that can be used to achieve coordination, and the assumptions that should be used in coordination, all vary depending on the particular proposed satellite and orbital location. With this in mind, the Appendix 30/30A procedures accommodate new satellites on a case-by-case basis. The Commission therefore does not need to establish unique answers to these questions, nor should it. Any adoption of rules or policy in this regard would constrain the development of specialized solutions in coordination. The Commission should actively support individual coordinations, encourage good faith

[95] *See, e.g.*, SES AMERICOM Consolidated Reply at 28.

efforts by the parties, and welcome service from any DBS satellites for which technical agreements can be reached

C. The DIRECTV Technical Proposals Should be Rejected by the Commission.

In its Petition, DIRECTV made a number of technical proposals for criteria that should be used to assess the technical feasibility of satellites in new orbital slots For the reasons given above, the Commission should continue to defer to coordination for resolution of such issues, and not adopt rules or policy that would unnecessarily constrain new entry At the same time, SES AMERICOM would like to take this opportunity to address briefly a number of DIRECTV's technical arguments and proposals.

DIRECTV provides no technical justification for its unnecessarily conservative proposed 24 dB C/I criteria (based on a two-satellite aggregate C/I of 21 dB) for protecting existing U.S DBS systems from new intra-service entrants While the ITU used the 21 dB aggregate criteria to develop the latest Region 1 and 3 Plans, the criteria used by the ITU is conservative in order to ensure that bi-lateral coordinations take place where needed Further, this ITU criteria was not used as a hard limit when developing the Plans, but as a goal that was not met in many cases. Some Plan assignments do not meet the 21 dB criteria by as much as 3 8 dB.[96]

In addition, an aggregate-to-single entry factor of 3 dB is questionable, when taken together with a large earth station antenna mispointing assumption. For example, when the earth station is mispointed toward one adjacent satellite, it is at the

[96] *See* ITU Radio Regulations, Appendix 30, Article 11.

same time mispointed by the same amount away from the other adjacent satellite, making the reduction in single-entry C/I from two adjacent satellites much less than 3 dB

Furthermore, the operational parameters that DIRECTV associates with or proposes for systems at new orbital locations (75-85 cm dishes, C/I of 12 dB, no protection from incumbents, etc.)[97] would clearly make competitive service from new satellites impossible DIRECTV provides no reason for handicapping new systems *a priori* with such inflexible requirements, when coordination can permit more optimal parameters

In any case, such topics are more appropriately addressed in the ongoing coordination between DIRECTV and SES AMERICOM. That coordination, and not a domestic rulemaking, is the forum established by international rules for determining the appropriate protection levels for the parties' respective systems.

IV. THE U.S. DBS LICENSING PROCEDURES SHOULD RESPECT ITU PRIORITY.

DIRECTV argues that "any new DBS orbital locations that the Commission makes available should be granted to licensees based on the current rules governing domestic DBS service "[98] SES AMERICOM agrees that this can be the case for any orbital locations and frequencies assigned *to the United States* under the BSS Plans However, DIRECTV's proposal appears to be broader. In particular, DIRECTV seeks dismissal of the SES AMERICOM Petition which does not propose use of a U.S.

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[97] DIRECTV Petition at 15 and 17-18.

[98] DIRECTV Petition at 18.

orbital slot – so that other "all current and potential providers of U S. DBS service" have the opportunity to acquire and make use of the subject orbital location.[99]

DIRECTV ignores the fact that a foreign Administration (the United Kingdom) has priority rights to SES AMERICOM's proposed orbital location. The United States has not even submitted an ITU filing for a satellite at this location The Commission cannot license orbital resources to which it has no right. [100] And even if the U S submitted an ITU filing for this orbital location at this point, it would not be able to coordinate operation of a U S.-licensed satellite at the same location as a co-coverage foreign-licensed satellite [101] As it has in the past, the Commission should respect ITU priority, and its rules for foreign entry under the *DISCO II* rules.[102]

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[99] DIRECTV Petition at 18

[100] The Commission recently acknowledged this point in its Order on auction of DBS licenses Auction of Direct Broadcast Satellite Licenses, *Order,* AUC-03-52, FCC 04-8 (January 15, 2004). In reaffirming its earlier decision that it has the authority to auction "DBS licenses for channels at orbit locations assigned to the United States under the ITU Region 2 Band Plan," *id* , at 6, the Commission distinguished the SES AMERICOM proposal, noting that "SES Americom's application to provide DBS service to the United States and the Caribbean would not involve the provision of service from an orbit location assigned to the United States or a request by the United States to modify the ITU Region 2 Band Plan." *Id* at 10

[101] As noted above, the Commission has licensed satellites pending coordination with higher-priority satellites. *See* note 76 *supra* However, such a license confers no meaningful rights if there is no reasonable expectation that coordination can be achieved

[102] *See* Amendment of the Commission's Regulatory Policies to Allow Non-U.S Licensed Space Stations to Provide Domestic and International Satellite Service in the United States, 12 FCC Rcd 24094 (1997) ("*DISCO II Order*"). *See also* Digital Broadband Applications Corp , File No SES-LIC-20020109-00023, *Order*, DA 03-1526, May 7, 2003, in which the International Bureau authorized Digital Broadband Applications Corp ("DBAC") to provide service in the United States using, *inter alia*, two Canadian direct broadcast satellites. In that case, there was never any suggestion of appropriating the Canadian orbital locations and subjecting them to

DIRECTV also proposes that the Commission cause foreign-licensed systems serving the United States to abide by all U S. domestic service rules governing DBS [103] As DIRECTV itself acknowledges, however, non-U S. satellite operators serving the U.S. are *already* required to comply with all Commission rules applicable to U S. satellite operators [104]

V. THE COMMISSION SHOULD EXPEDITIOUSLY GRANT THE SES AMERICOM PETITION.

The ITU procedures described in detail above apply directly in the case of the SES AMERICOM satellite at 105 5° W L In pursuing entry of this satellite into the BSS Plans, the Governments of the United Kingdom and Gibraltar have followed the relevant ITU rules and procedures for use of these bands.[105] In addition, the SES AMERICOM Petition meets all of the Commission requirements for entry of foreign-licensed satellites.[106]

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auction in the United States To the contrary, the Commission praised the DBAC proposal, and argued that U S service from these Canadian slots would enhance competition in the United States for broadband video and data services. *Id*, ¶¶ 16, 18.

[103] DIRECTV Petition at 19

[104] DIRECTV Petition at 19, *DISCO II Order*, ¶ 173; *DBS Order*, ¶ 91

[105] Like other DBS satellites serving the U S., the technical parameters of the SES AMERICOM satellite differ from those of the original Region 2 Plans. The United Kingdom, on behalf of Gibraltar, has submitted the relevant Appendix 4 information to modify the Region 2 Plans to include 105 5° W.L. frequency assignments reflecting the parameters of that satellite. Because certain systems are identified as "affected" according to the ITU rules, international coordination of the SES AMERICOM satellite is proceeding

[106] *See* SES AMERICOM Petition at 12-21, SES AMERICOM Consolidated Reply at 33-42; 45-51

Furthermore, as SES AMERICOM has demonstrated, there is no reason why the Commission should delay grant of the SES AMERICOM Petition pending coordination. There is ample precedent for Commission grant of authority *subject to* completion of coordination. As the Commission recently stated:

> The Commission has held that it is not necessary to complete international coordination before a satellite system can be authorized to provide service in the United States. [footnote omitted] It is sufficient for purposes of the *DISCO II* framework that coordination has been initiated. . . .[107]

The SES AMERICOM Petition therefore is fully ripe for consideration, and the Commission should act expeditiously to grant this Petition.

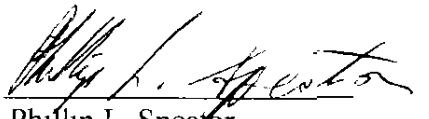
[107] Loral Spacecom Corporation, *Order*, DA 03-2624 (Aug. 8, 2003), ¶ 15.

VI. CONCLUSION

For the above reasons, the Commission should reject the DIRECTV Petition for Rulemaking, and continue to adhere to the Appendix 30/30A procedures for modification of the BSS Plans As the Commission has already held, no other technical rules are required to protect existing U.S. systems, while reserving options for future entrants.

Furthermore, SES AMERICOM's proposal to offer satellite capacity for third-party direct-to-home services via a DBS satellite at 105 5° W.L. complies with all of the Commission's procedural and substantive requirements for entry by a foreign-licensed satellite, and is in the public interest. Accordingly, the Commission should act expeditiously to grant this Petition

Respectfully Submitted,

By: 

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